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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,088	04/07/2004	Frank Adler	57.0541 US NP	7130
37003	7590	12/20/2005	EXAMINER	
SCHLUMBERGER-DOLL RESEARCH 36 OLD QUARRY ROAD RIDGEFIELD, CT 06877-4108			NGHIEM, MICHAEL P	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/820,088

Applicant(s)

ADLER ET AL.

Examiner

Michael P. Nghiem

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3, 5, 6, 8, 12-19, 21, 22, 24 and 28-33 is/are rejected.
7) ☒ Claim(s) 4, 7, 9-11, 20, 23 and 25-27 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 07 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Amendment filed on October 7, 2005 has been acknowledged.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract contains more than one paragraph. A period should follow the equation (line 8) and the paragraph beginning with "Here" should follow the period.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, 8, 12-19, 21, 22, 24, and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Bahjat (US 3,864,667).

Regarding claims 1 and 17, Bahjat discloses a method and apparatus for determining at least one parameter of a waveguide from wavefield data acquired from wave propagation in the waveguide (Abstract, lines 1-5), the method comprising the steps of:

- obtaining a first and a second dispersion curves (waves, Fig. 3) corresponding to different guided wave modes (waves travel at different angles and through different media 22, 24, Fig. 3) in the frequency domain from the wavefield data (column 10, lines 51-52);

- determining at least one parameter of the waveguide (Abstract, lines 1-2) from a frequency interval between the first dispersion curve and the second dispersion curve (Abstract, lines 3-6).

Regarding claims 2 and 18, Bahjat discloses obtaining the first and second dispersion curves in the frequency and phase velocity domain (Abstract, lines 3-5).

Regarding claims 3 and 19, Bahjat discloses determining the frequency separation $\Delta f(V)$ between the first and second dispersion curves at a first value of the phase velocity V (Fig. 2).

Regarding claims 5, 6, 21, and 22, Bahjat discloses determining the velocity of wave propagation in the waveguide from the dispersion curves (Fig. 2).

Regarding claims 8 and 24, Bahjat discloses determining values of the frequency separation between the first dispersion curve and the second dispersion curve for at least two different values of the phase velocity (Fig. 2).

Regarding claim 12, Bahjat discloses a method of processing wavefield data, the method comprising:

- acquiring wavefield data (wave velocity);
- determining at least one parameter of a waveguide according to a method of claim 1 (Abstract, lines 1-2);
- taking the at least one parameter into account during subsequent processing of the wavefield data (column 6, lines 35-45).

Regarding claim 13, Bahjat discloses that the wavefield data are seismic wavefield data (column 4, lines 3-9).

Regarding claims 14 and 31, Bahjat discloses that the step of determining at least one parameter is independent of density of the waveguide (frequency is independent of density, column 5, line 6).

Regarding claims 15 and 32, Bahjat discloses the step of determining at least one parameter is independent of density of a layer below the waveguide (column 5, line 6).

Regarding claims 16 and 33, Bahjat discloses that the first and second dispersion curves are adjacent in the frequency domain and phase velocity domain (Fig. 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahjat in view of Wooh (US 6,360,609).

Bahjat discloses all the claimed limitations as discussed above except a programmable data processor.

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Nevertheless, Wooh discloses a programmable data processor (microprocessor 14) for the purpose of inducing an acoustic guided wave and guide and reading from a sensor (Fig. 1a) to interpret dispersive medium (column 4, line 66 – column 5, line 9).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Bahjat with a programmable processor as disclosed by Wooh for the purpose of interpreting dispersive medium.

Allowable Subject Matter

Claims 4, 7, 9-11, 20, 23, and 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons For Allowance

The **combination** as claimed wherein determining the thickness using the formula as claimed (claims 4, 10, 26) or determining the velocity of wave propagation in the waveguide as the asymptotic velocity limit of the dispersion curves (claims 7, 23) or determining the thickness of the waveguide from the values of the frequency separation between the first dispersion curve and the second dispersion curve for at least two different values of the phase velocity (claims 9, 25) or auto-correlating in the frequency-

velocity domain the first and second dispersion curves, and determining at least one parameter of the waveguide from the results of the auto-correlation step (claims 11, 27) is not disclosed, suggested, or made obvious by the prior art of record.

Response to Arguments

Applicant's arguments filed October 7, 2005 have been fully considered but they are not persuasive.

With respect to the 35 USC 102 rejections, Applicants argue that Bahjat does not disclose a second dispersion curve which is based on observed or recorded data. Fig. 2 of Bahjat shows only one observed curve.

Examiner's position is that Bahjat discloses a second dispersion which is based on observed or recorded data (Fig. 3 shows detecting 4 waveforms; Fig. 4 shows the 4 waveforms that are detected, also see column 10, lines 51-52).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

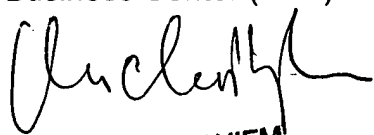
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MICHAEL NGHIEM
PRIMARY EXAMINER

Michael Nghiem

December 17, 2005